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Mass Casualty Triage
Performance Assessment Tool

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14. ABSTRACT *(Maximum 200 words)*:

This report contains a description of a tool for mass casualty triage assessment which is a primary task for units with the Defense Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) Response Force (DCRF) mission. Such units provide life saving and sustaining support, including medical triage, to civil authorities following a catastrophic event. The tool was developed to be easy to implement and score by a military trainer but also provide substantive information about a trainee's performance. Unit personnel reviewed the tool for accuracy and functionality. A prototype of medical triage assessment, instructions on how to use it, and a scoring rubric are included. The description of the tool's development is given in Curnow, Bryson, Barney, Keller-Glaze, and Vowels, 2015. Development of a Mass Casualty Triage Performance Assessment is ARI Technical Report 1350.

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MASS CASUALTY TRIAGE PERFORMANCE ASSESSMENT TOOL

EXECUTIVE SUMMARY

Research Requirement:

An ever-growing and changing task list for Army units requires the development of measurement tools for all those unit trainers and leaders to accurately evaluate their unit's level of readiness. The objective of this research was to develop and refine a prototype measure for a hard-to-measure, collective task. This product contains a description of a tool for mass casualty triage assessment which is a primary task for units with the Defense Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) Response Force (DCRF) mission. Such units provide life saving and sustaining support, including medical triage, to civil authorities following a catastrophic event. Therefore the tool was developed to be easy to implement and score by a military trainer, but also provide substantive information about a trainee's performance. A more thorough description of tool development can be found in Curnow, Bryson, Keller-Glaze, and Vowels (In Preparation).

Procedure:

Based on prior research (see Curnow et al., In Preparation), an assessment tool was developed. As a final step in the tool development, active duty Soldiers and leaders involved in training medical triage at their unit reviewed the assessment and provided feedback for further refinement. Questions that lead to the refined version of the tool provided in this report can be found in Appendix F in Curnow et al., (In Preparation).

Findings:

The culmination of research and collaboration with the military police (MP) unit was the development of a tool to assess performance of a medical triage task. The tool was designed for one assessor to observe the triage tasks performed and provide ratings of Soldiers performing triage individually or in teams of two. The tool includes instructions for the assessor to make proficiency ratings and provide critical feedback about the casualty's state to the Soldier being assessed.

Utilization and Dissemination of Findings:

The findings of this research, in the form of a Tool for Mass Casualty Triage Assessment, can be used by units to determine their readiness to perform triage during a mass casualty training event and to provide feedback to individuals and teams regarding their task performance. This research was completed with a MP unit with the DCRF mission and was focused on providing them an enhanced tool to assess medical triage training performance.

MASS CASUALTY TRIAGE PERFORMANCE ASSESSMENT TOOL

CONTENTS

Mass Casualty Triage Performance Assessment Tool

Assessments based on training and evaluation outlines (T&EO) for collective tasks provide commanders and unit trainers with a "Go" or a "NoGo" for each task step and are used to determine if a unit is "trained," "needs practice," or "untrained" on the task. However, metrics of collective performance solely based on the tasks, conditions, and standards may not be valid/useful indicators of unit performance, given the wide variety of decision-making situations (i.e., it may not be possible to specify standards applicable to all potential situations). Likewise, specifying precise criteria for tactical decision-making in unpredictable and unfamiliar situations may be extremely difficult (c.f., Dyer, 2004). Given the immensity of tactical tasks for which Soldiers are supposed to be trained to complete and the lack of more precise measurement tools, one key gap identified for the current research was to develop performance measurement methods and feedback tools that can be used to effectively assess Brigade Combat Team (BCT) performance (i.e., individual and collective unit training assessment, diagnostic, and feedback tools). The development of reliable, valid, and more sensitive collective performance assessments would allow leaders to more accurately assess their Soldiers' performance. This would also allow trainers to develop tailored training events for their units and provide unit commanders with additional information for honing key skills.

The National Response Framework (NRF) defines catastrophic events as "any natural or man-made incident, including terrorism, which results in extraordinary levels of mass casualties, damage, or disruption severely affecting the population, infrastructure, environment, economy, national morale, and/or government functions" (Center for Army Lessons Learned, 2006, p.38). During these events, local and state medical personnel are often overwhelmed by the sheer magnitude of the situation. As a result, the military is often called upon to assist in these efforts by providing additional manpower and support to the affected area. In October of 2011, the United States Northern Command (USNORTHCOM) created what is known as the Defense Chemical, Biological, Radiological, Nuclear, and Explosive (CBRNE) Response Force (DCRF) to help with this augmentation (Department of the Army, 2011). Its primary mission is to provide life saving and life-sustaining support to civil authorities following a catastrophic event (Cohen, 2011). Some of its key capabilities include: search and rescue; mass casualty decontamination; medical evacuation; and medical triage (Cannon, 2012).

Mass Casualty Triage

Mass casualty triage is a key factor in the successful management of catastrophic events (CALL, 2006). Triage is a method that allows patients to be quickly evaluated and medically sorted based on the urgency of the treatment needed; type and seriousness of injury; and likelihood of survival (Community Emergency Response Team, 2011). Typically, triage is performed when the number of injured individuals is high and available medical personnel are limited. The goal of triage is to prioritize attention and rapidly identify and separate those who need immediate care from those who can wait for medical assistance. The strategy is designed to provide the greatest good for the greatest number of victims. Triage also allows for an efficient use of personnel, equipment, and facilities while promoting organization and order in situations that are often chaotic (Community Emergency Response Team, 2011).

This document provides the mass casualty triage assessment, its purpose, and its uses. A detailed description of the research supporting it is presented in Curnow, Bryson, Barney, Keller-Glaze, and Vowels (In Preparation).

Research Product

The mass casualty assessment is a paper-based measure that can be used to evaluate Soldier readiness to triage injured civilians during a mass casualty exercise. It is based in part on the Simple Triage And Rapid Treatment (START) method which is one of the more widely used methods available for conducting triage during mass casualties in a disaster (Kahn, Schultz, Miller, & Anderson, 2009). The assessment comprises six cases and each case includes a scenario describing the victim, a list of tasks that must be carried out in order to correctly determine the victim's triage level, and a rating scale. The exercise can be used to rate Soldiers performing triage individually or in teams of two. The assessor uses the tool to make ratings and provide necessary feedback to the Soldier being evaluated. The assessor should also measure the time it takes to triage each victim and should expect that each is completed in one minute or less.

Instructions for Use

In the *tasks required* section of the assessment, the rater evaluates how well Soldiers perform each task in the triage evaluation (given the case presented) and whether they perform the steps on each task in the proper order. Each task receives either a "performed correctly," "performed incorrectly or with difficulty," or "task excluded." For example, if a Soldier performs all of the steps correctly on a given task, he or she would receive a check mark in the corresponding "performed correctly" box. If a Soldier excludes one or more steps on a particular task (and/or has difficulty with it), he or she would receive a check mark in the "performed incorrectly or with difficulty" box. Finally, if a Soldier excludes a required task all together during the evaluation, he or she would receive a check mark in the "task excluded" box.

Upon completion of the tasks required section, the rater then moves into the *triage category* section consisting of four categories: Red, Yellow, Green, and Black; each corresponding to a level of priority for treatment. The rater checks the category selected by the Soldier after evaluating the casualty.

Once the Soldier has completed the tasks required and selected a triage category, the rater then writes down the *time to completion* (in minutes and seconds). As requested by Soldiers, an expanded *notes* section has been provided for the rater at the bottom of the mass casualty triage assessment for any additional details or points of clarification they might want to include during their assessment and for specific feedback.

At the conclusion of the assessment, the rater then writes down the performance level number (i.e., 1, 2, or 3) for each dimension found on the scoring rubric in the corresponding block provided under the *scoring section* of the mass casualty assessment that best reflects the Soldiers performance on that dimension. The rater then adds up the performance level numbers from each dimension block in the scoring section for an overall score. Scores can range from 3 to 9 on each assessment (0 - 3=Low, 4 - 6=Medium, 7 - 9=High). This same method is used for

all six mass casualty cases. The rater then adds up the overall scores from each of the six mass casualty cases to determine the Soldier's final readiness score (0-18=Low, 19-36=Medium, 37-54=High).[1]

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[1] The ranges were calculated by taking the maximum score possible and dividing it by three to determine the range for each point group (i.e., low, medium, and high).

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Appendix A

Mass Casualty Assessment

Instructions:

In the **tasks required** section of the assessment, evaluate how well Soldiers perform each task in the triage evaluation (given the case presented) and whether they perform the steps on each task in the proper order. Each task receives either a "performed correctly," "performed incorrectly or with difficulty," or "task excluded." For example, if a Soldier performs all of the steps correctly on a given task, he or she would receive a check mark in the corresponding "performed correctly" box. If a Soldier excludes one or more steps on a particular task (and/or has difficulty with it), he or she would receive a check mark in the "performed incorrectly or with difficulty" box. Finally, if a Soldier excludes a required task all together during the evaluation, he or she would receive a check mark in the "task excluded" box.

Upon completion of the tasks required section, the rater then moves into the **triage category** section consisting of four categories: Red, Yellow, Green, and Black. Each category corresponds to a level of priority for treatment. The rater checks the category selected by the Soldier after evaluating the casualty.

Once the Soldier has completed the tasks required and selected a triage category, the rater then writes down the **time to completion** (in minutes and seconds).

A **notes** section has been provided for the rater at the bottom of the mass casualty triage assessment for any additional details or points of clarification they might want to include during their assessment.

Mass Casualty Triage Assessment

CASE 1: Wounded civilian is not ambulatory, is lying on his/her side, and has minor burns to the arms, and bruising to the head and neck.

Tasks Required	Performed correctly	Performed incorrectly or with difficulty	Task excluded
	✓	✓	✓
Check for consciousness • Shake victim and speak loudly at arm's distance.			
Position the victim • Raise the near arm of the victim and straighten it out above their head. • Adjust the legs of the victim so they are together and straight or almost straight. • Place one hand on the back of the victim's head and neck. • Grasp the victim under the arm with the free hand. • Pull the victim in a steady and even manner toward yourself, keeping their head and neck in line with their torso. • Roll the victim as a single unit. • Place the victim's arms at his/her sides.			
Look, listen and feel for breathing • Place ear over victim's mouth and nose to listen and feel for air movement. • Look for the chest to rise and fall. • Listen for air exchange. • Feel for abdominal movement.			
Check breathing rate • Count the number of chest rises within 15 seconds and multiply by 4.			
Assessor Feedback: Breathing rate is 20 breaths per minute			
Check for bleeding • Look for blood-soaked clothing. • Look for wounds. • Place hand behind the victim's neck and pass them upward toward the top of the head checking for blood. • Place your hands behind the victim's shoulders and pass them downward behind the back, the thighs, and the legs.			
Assessor Feedback: No bleeding discovered			
Check circulation using blanch test for capillary refill • Press on an area of skin or on finger nail until normal skin color is gone. • Time how long it takes for normal color to return.			
Assessor Feedback: Capillary refill takes 5 seconds			
Treat for shock • Elevate feet 6-10 inches above heart and maintain body temperature with blanket, if available.			
Tag civilian RED for Immediate			
Triage Category			

Red _____   Yellow _____   Green _____   Black _____

Time to Completion

Minutes _____   Seconds _____

Scoring Section

Fill in each dimension with either a 1 = Novice; 2 = Intermediate; or 3 = Advanced

Tasks Required	
Triage Category +	
Time to Completion +	
Overall Score	

Notes

CASE 2: Wounded civilian is not ambulatory, is lying on his/her back, and appears motionless.

Tasks Required	Performed correctly	Performed incorrectly or with difficulty	Task excluded
	✓	✓	✓
Check for consciousness • Shake victim and speak loudly at arm's distance.			
Look, listen and feel for breathing • Place ear over victim's mouth and nose to listen and feel for air movement. • Look for the chest to rise and fall. • Listen for air exchange. • Feel for abdominal movement.			
Assessor Feedback: No respiration detected			
Position the air way using Head-Tilt /Chin-Lift • Kneel at the level of the victims shoulders. • Place one hand on the victim's forehead and apply firm backward pressure with the palm to tilt the head back. • Place the fingertips of the other hand under the bony part of the victim's lower jaw and lift, bringing the chin forward. • Look into the victim's mouth and sweep for obstructions (e.g., vomit) using your index finger. • Place ear over victim's mouth and nose to listen and feel for air movement (this includes looking for the chest to rise and fall, listening for air exchange, and feeling for abdominal movement).			
Assessor Feedback: Respiration does not return after first attempt			
Position the air way using Head-Tilt /Chin-Lift • Perform Head-Tilt/Chin-Lift again.			
Tag civilian BLACK for Expectant or Dead			

Triage Category

Red _____   Yellow _____   Green _____   Black _____

Time to Completion

Minutes _____   Seconds _____

Scoring Section

Fill in each dimension with either a 1 = Novice; 2 = Intermediate; or 3 = Advanced

Tasks Required	
Triage Category +	
Time to Completion +	
Overall Score	

Notes

CASE 3: Wounded civilian is not ambulatory, is lying on his/her back, and has multiple lacerations and bruises.

Tasks Required	Performed correctly	Performed incorrectly or with difficulty	Task excluded
	✓	✓	✓
Check for consciousness • Shake victim and speak loudly at arm's distance.			
Look, listen and feel for breathing • Place ear over victim's mouth and nose to listen and feel for air movement. • Look for the chest to rise and fall. • Listen for air exchange. • Feel for abdominal movement.			
Check breathing rate • Count the number of chest rises within 15 seconds and multiply by 4.			
Assessor Feedback: Breathing rate is less than 30 breaths per minute			
Check for bleeding • Look for blood-soaked clothing. • Look for wounds. • Place hand behind the victim's neck and pass them upward toward the top of the head checking for blood. • Place your hands behind the victim's shoulders and pass them downward behind the back, the thighs, and the legs.			
Assessor Feedback: Civilian has spurting bleeding from right leg			
Control the bleeding • Put pressure on the nearest pressure point (between the wound and the heart) and elevate the wound above the level of the heart to slow the flow of blood to the wound. • Apply a clean dressing over the wound. • Apply pressure to the dressing over the wound. • Wrap a pressure bandage around the dressing over the wound. • Elevate wound above heart (for extremities only).			
Check circulation using blanch test for capillary refill • Press on an area of skin until normal skin color is gone. • Time how long it takes for normal color to return.			
Assessor Feedback: Capillary refill takes 1 second			
Check for mental status • Give simple command to victim (e.g., squeeze my hand).			
Assessor Feedback:			
Tag civilian YELLOW for Delayed			

Triage Category

Red _____   Yellow _____   Green _____   Black _____

Time to Completion

Minutes _____   Seconds _____

Scoring Section

Fill in each dimension with either a 1 = Novice; 2 = Intermediate; or 3 = Advanced

Tasks Required		
Triage Category	+	
Time to Completion	+	
Overall Score		

Notes

CASE 4: Wounded civilian is lying down, holding his/her head in his/her hands and moaning.

Tasks Required	Performed correctly ✓	Performed incorrectly or with difficulty ✓	Task excluded ✓
Look, listen and feel for breathing • Place ear over victim's mouth and nose to listen and feel for air movement. • Look for the chest to rise and fall. • Listen for air exchange. • Feel for abdominal movement.			
Check breathing rate • Count the number of chest rises within 15 seconds and multiply by 4.			
Assessor Feedback: Breathing rate is 25 breaths per minute			
Check for bleeding • Look for blood-soaked clothing. • Look for wounds. • Place hand behind the victim's neck and pass them upward toward the top of the head checking for blood. • Place your hands behind the victim's shoulders and pass them downward behind the back, the thighs, and the legs.			
Assessor Feedback: No noticeable bleeding			
Check circulation using blanch test for capillary refill • Press on an area of skin until normal skin color is gone. • Time how long it takes for normal color to return.			
Assessor Feedback: Refill is less than one second			
Check for mental status • Give simple command to victim (e.g., squeeze my hand).			
Assessor Feedback: Cannot follow any simple commands			
Treat for shock • Elevate feet 6-10 inches above heart and maintain body temperature with blanket if available.			
Tag civilian RED for Immediate			
Triage Category			

Red _____   Yellow _____   Green _____   Black _____

Time to Completion

Minutes _____   Seconds _____

Scoring Section

Fill in each dimension with either a 1 = Novice; 2 = Intermediate; or 3 = Advanced

Tasks Required	
Triage Category +	
Time to Completion +	
Overall Score	

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Notes

CASE 5: Wounded civilian is not ambulatory, is lying on his/her back, and has multiple lacerations and bruises.

Tasks Required	Performed correctly	Performed incorrectly or with difficulty	Task excluded
	✓	✓	✓
Check for consciousness • Shake victim and speak loudly at arm's distance.			
Look, listen and feel for breathing • Place ear over victim's mouth and nose to listen and feel for air movement. • Look for the chest to rise and fall. • Listen for air exchange. • Feel for abdominal movement.			
Check breathing rate • Count the number of chest rises within 15 seconds and multiply by 4.			
Assessor Feedback: Breathing rate is about 50 breaths per minute			
Treat for shock Elevate feet 6-10 inches above heart and maintain body temperature with blanket if available.			
Tag civilian RED for Immediate			

Triage Category

Red _____   Yellow _____   Green _____   Black _____

Time to Completion

Minutes _____   Seconds _____

Scoring Section

Fill in each dimension with either a 1 = Novice; 2 = Intermediate; or 3 = Advanced

Tasks Required   [ ]
Triage Category   +   [ ]
Time to Completion +   [ ]

Overall Score   [ ]

Notes

CASE 6: Wounded civilian is not ambulatory, is lying on his/her back, and appears motionless.

Tasks Required	Performed correctly	Performed incorrectly or with difficulty	Task excluded
	✓	✓	✓
Check for consciousness • Shake victim and speak loudly at arm's distance.			
Look, listen and feel for breathing • Place ear over victim's mouth and nose to listen and feel for air movement. • Look for the chest to rise and fall. • Listen for air exchange. • Feel for abdominal movement.			
Assessor Feedback: No respiration detected			
Position the air way using Head-Tilt /Chin-Lift • Kneel at the level of the victims shoulders. • Place one hand on the victim's forehead and apply firm backward pressure with the palm to tilt the head back. • Place the fingertips of the other hand under the bony part of the victim's lower jaw and lift, bringing the chin forward. • Look into the victim's mouth and sweep for obstructions (e.g., vomit) using your index finger. • Place ear over victim's mouth and nose to listen and feel for air movement (this includes looking for the chest to rise and fall, listening for air exchange, and feeling for abdominal movement). • Perform Head-Tilt/Chin-Lift again, if needed.			
Assessor Feedback: Spontaneous respirations return after Head-Tilt/Chin-Lift			
Tag civilian RED for Immediate			

Triage Category

Red _____   Yellow _____   Green _____   Black _____

Time to Completion

Minutes _____   Seconds _____

Scoring Section

Fill in each dimension with either a 1 = Novice; 2 = Intermediate; or 3 = Advanced

Tasks Required		
Triage Category	+	
Time to Completion	+	
Overall Score		

Notes

Appendix B

Scoring Rubric

Scoring:

The scoring rubric consists of three dimensions that correspond to the three sections of the mass casualty assessment tool; specifically, tasks required, triage category, and time to completion (see below). For each of these dimensions there are three levels of performance (1 = Novice, 2 = Intermediate, and 3 = Advanced) with descriptions of what is expected at each of these levels.

To score a completed assessment, do the following:

1. Write the performance level number (i.e., 1, 2, or 3) for each dimension found on the scoring rubric in the corresponding block provided under the ***scoring section*** of the mass casualty assessment that best reflects the Soldier's performance on that dimension.

2. Add up the performance level numbers from each dimension block in the scoring section for an overall score. Scores can range from 3 to 9.*

    *   Low = 0 – 3
    *   Medium = 4 – 6
    *   High = 7 – 9

3. Repeat steps 1 and 2 for each of the six mass casualty assessments.

4. Add overall scores from each of the six mass casualty assessments to determine the Soldier's final readiness score.*

    *   Low = 0 –18
    *   Medium = 19 – 36
    *   High = 37 – 54

* The ranges were calculated by taking the maximum score possible and dividing it by three to determine the range for each point group (i.e., low, medium, and high).

Scoring Rubric

Criteria	1 Novice	2 Intermediate	3 Advanced
Task	Missed (or performed incorrectly or with difficulty) one or more steps on two or more of the triage tasks.	Missed (or performed incorrectly or with difficulty) one or more steps on one of the triage task.	Completed all steps correctly (and without difficulty) for all triage tasks.
Triage Category	Did not assign a triage category to the casualty.	Assigned casualty to a triage category lower or higher than his or her true level of urgency (i.e., undertriaged, overtriaged).	Assigned casualty to the correct triage category.
Time	Took more than 1 minute to complete the triage assessment of the casualty.	Took less than 1 minute (but more than 30 seconds) to complete the triage assessment of the casualty.	Took 30 seconds or less to complete the triage assessment of the casualty.